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Freight Mobility: Some Lessons and Observations From a State Perspective

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Introduction

During the mid- and late-1990s, a number of state and regional transportation agencies established new activities to address the movement of freight. Rising traffic congestion was adversely impacting truck freight movement within many metropolitan areas and contributing to delays in the movement of commodities from rural producers to urban transshipment and distribution centers. An expanding national economy was creating demand for imports and domestic products that was straining the landside connections at the nation's marine and air freight gateways as well as at international border crossings. Growing rail freight volumes, the resurgence of rail passenger service in some parts of the country and mainline rail mergers were leading to roadway/railway conflicts that many local communities found unacceptable. Furthermore, federal funding for freight projects was available through the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and later through the Transportation Equity Act for the 21st Century (TEA-21).

The vocabulary of transportation policy discussions changed as state departments of transportation (DOTs) began to focus on freight mobility as an issue area. Transit, high occupancy vehicle lanes, light rail, commuter rail, pedestrian walkways, bicycles lanes and other personal mobility issues continued to be discussed, of course, but they were no longer "Topic A." The transportation policy lexicon began to include phases such as just-in-time, throughput, delivery variation, intermodal hubs, load centers, on-dock rail, regional supply chains, logistic networks, post-Panamax and container re-positioning.

State DOTs acquired a new set of expectations along with the new vocabulary and the growing focus on freight. Three of the expectations seem to be common to most states. At the risk of overstatement, state DOTs were expected to address freight issues in their decision-making and funding rather than neglect or pass over freight problems. Second, state DOTs were to assume the leadership role in freight partnerships involving private freight interests, the federal government, regional transportation organizations and local communities. Finally, state DOTs were expected to develop long-term plans for improving freight mobility and then secure the public-private funding to implement those plans.

The Washington State Department of Transportation (WSDOT) has not been immune from these expectations. Nor has the department avoided the inevitable mis-steps and disappointments that any early initiator must surmount. Dealing with these expectations has been and will continue to be a learning experience for WSDOT. Some of the lessons being learned may have applicability for others. "Lessons being learned" is the operative phrase, because state transportation agencies, including WSDOT, enter a new domain with freight mobility, one far different from that to which they are accustomed. The lessons being learned and examples that follow are presented from the perspective of one state DOT to another. Other institutions, including private sector freight interests, regional transportation organizations and local governments, hopefully will benefit as well from the experiences of WSDOT and its partners in Washington State.[1]

Doing More Than Most Realize

State DOTs are probably doing more through their regular programs to address freight issues than either they or others realize. This has been the experience of WSDOT when the department has explained the freight-related components of its programs and activities to freight shippers, private carriers, economic development groups and local governments. More telling, WSDOT continues to be reminded of this lesson with some transportation organizations with which the agency works closely. There are at least two reasons why existing state freight efforts may not be more widely recognized.

First, private sector freight interests and many others often overlook existing freight-related activities because of the breadth and length of state transportation agendas. The Washington Transportation Plan (WTP) presents a 20-year blueprint for state-owned systems, including the state highways, Washington State ferries and state-owned airports. In addition, as mandated by federal and state planning requirements, the WTP addresses transportation facilities and services in which the state has an interest. These include some 26 public transit agencies, multiple intercity bus carriers, over 3,200 miles of rail, the award-winning Amtrak Cascades rail passenger service, numerous marine and river ports, over 100 non-state airports, as well as pedestrian and bicycle transportation.[2]

Second, some freight-related components of regular state transportation programs can be invisible to all but transportation aficionados. In part, this reflects the complexity of state transportation programs, along with their accompanying decision rules, priority arrays, technical algorithms and multiple funding sources. However, it also reflects the fact that the movement of freight is and will continue to be treated as an integral part of some state transportation programs. WSDOT programs provide some examples of this integration as well as freight activities that are often overlooked.

Highways

A core business of WSDOT is the 7,000-mile system of interstate, urban and rural state highways in Washington State. Every two years, the department prepares a Highway System Plan (HSP) that describes how the department will maintain, operate, preserve and improve the state's highway system over the next 20 years. It is the basis for the state highway element of WSDOT's six-year financial plan and the two-year state highway

budget. The HSP identifies highway needs and their estimated costs within four program areas: maintenance, traffic operations, preservation and improvement. Within the Improvement program, the Mobility subprogram is targeted at improving mobility within congested highway corridors while the Economic Initiatives subprogram has components targeted at reducing freight delay.[3]

Urban and Rural Mobility

Urban and rural highway mobility projects, which add highway capacity, are evaluated against five criteria to determine their priority for funding consideration in Washington State. The criteria are benefit-cost, community support, environmental impact, land use and multi-modal. Evaluations of these five factors are combined into a single value using a complex mathematical formula to determine the order preference or priority of highway mobility projects. Benefit-cost is the factor with the most weight, and it reflects the present value of project benefits and the present value of project costs. [4]

The benefits of a mobility project are calculated for the users of the facility and include the timesaving benefits (reduced delay) for both people and freight as well as accident reduction benefits. Annual traffic volumes with and without the proposed project are projected for the 20-year calculation period and the time saved for people and trucks are estimated as separate items. These time savings are converted to monetary terms, and then discounted to yield the present value benefit from reduced delay. The current benefit values, which are subject to change, are 10 dollars per person per hour for people and 50 dollars per truck per hour for freight. Annual reductions in accidents resulting from the proposed project are estimated for different types of accidents based on historical data. The accident reductions are converted with specific factors to monetary terms, which are discounted to yield the present value of accident reductions.

The state's urban and rural highway mobility category recognizes that additions to highway capacity benefit the movement of people and the movement of freight. Both personal mobility and freight mobility are addressed through a common factor, the monetary value of time saved, and both are integral parts of state funding decisions for added highway capacity. It is noteworthy that the value of reduced delay is more than an analytical device for helping to establish funding priorities. The dollar value of travel time saved is one of the performance measures for the Highway Mobility subprogram that WSDOT reports to the Washington State Legislature and the Washington Transportation Commission.

Economic (Freight) Initiatives

The Economic Initiatives subprogram of WSDOT's Highway Improvement program offers three examples of existing activities that are often overlooked in the larger scheme of state transportation efforts. The three categories, All-Weather Highways, Trunk System and Restricted Bridges, are all aimed at reducing truck freight delay. Like the Mobility subprogram, the dollar value of travel time saved is one of the performance measures for the Economic Initiatives subprogram that WSDOT reports to the state Transportation Commission and the Legislature.

Eligible projects for two categories, All-Weather Highways and Trunk System, must be on the state's Freight and Goods Transportation System (FGTS) for highways and local roads. This system of designated highways, county roads and city streets was initially developed under a Legislative cost responsibility study in the early 1990s. The FGTS is updated periodically and identifies roadway segments that play a significant role in goods movement within the state. Roadway segments are classified into five categories based on the level of annual gross freight tonnage carried. Tonnages are derived from mechanical or observed truck counts and estimated gross weights for various truck classes. Although tonnage does not necessarily correlate with the value or volume of freight, tonnages represent an available, low-cost measure that allows comparisons across the state, county and city roadway systems.

WSDOT's All-Weather Highways category funds upgraded pavement structure on FGTS highways to eliminate weight restrictions to truck travel during freeze/thaw conditions. If the roadway surface depth is less than 50 percent of the frost depth, the roadway section is considered deficient and susceptible to damage by heavy loads when the roadway thaws after a freeze. The highest priority highway sections considered for funding are those sections that have been closed to traffic in the past due to severe freeze/thaw conditions. The Trunk System category is aimed at completing a four-lane, divided, limited access highway system for high priority truck freight corridors. This program addresses state highways that are classified as T-1 on the FGTS and carry over 10 million gross tons of freight each year.[3]

The third example that addresses truck freight delay under the Economic Initiatives subprogram is Restricted Bridges. This category includes low vertical clearance underpasses on the Interstate highways and load-restricted bridges (licensed legal overloads). Low vertical clearance structures on Interstate highways have priority over load-restricted bridges, and the priority of underpass structures is based on their detour length. Detour length corresponds to travel delay time for trucks, which is the most significant benefit resulting from fixing the low clearance structures.[4]

Railroads

WSDOT involvement with rail freight issues dates back to the establishment of the current department in 1977. At that time, the WSDOT was given the responsibility of preparing the state's rail plan for both federal and state funds. During the 1980s, the department's rail program focused on light-density rail lines and maintaining essential rail freight service as the mainline railroads reduced their systems through abandonments. Despite notable successes, there was little recognition of this work outside of transportation circles and the local communities that depended on shipping products over light-density lines. State funding was provided through an Essential Rail Assistance Account and an Essential Rail Banking Account. Program support was also obtained from the federal Local Rail Freight Assistance program and local jurisdictions.

The framework for WSDOT's existing Freight Rail program was established in 1990 following the recommendations of the Rail Development Commission created by the Legislature. The program was broadened in 1995 to include the entire statewide rail system, not just the light-density line component as it was originally established. The objectives of the program are threefold: (1) ensure adequate mainline freight capacity and safety as well as enhance access to and capacity of intermodal terminals; (2) preserve and enhance service on branch lines, promote continued service on light density lines, and preserve essential lines threatened with abandonment; and (3) identify and preserve essential rail corridors for future rail service. The 1998 update of the Washington State Freight Rail Plan identifies 15 freight rail projects completed during the prior six years that attest to the success of the department's Freight Rail program.[5]

Grain Train

One initiative of the WSDOT's Freight Rail effort is the state's Grain Train program, which has received national recognition. This effort was developed in 1994 in response to chronic grain car shortages in southeastern Washington State. These shortages posed the risk of abandonment for some 200 miles of light-density rail lines because the railroads serving the area would not have sufficient traffic to maintain their operations. Drawing on federal Stripper Well overcharge funds, WSDOT purchased 29 covered hopper grain cars in return for commitments from four co-ops to ship their grain on designated light-density rail lines. The Port of Walla Walla manages the fleet on behalf of WSDOT, and the shippers pay market rates for using the grain cars. The program is a success by almost any measure. Light-density rail lines are preserved, providing modal choice for shippers and helping keep Washington farmers competitive in world markets. The public cost of road maintenance resulting from heavy trucks on state and local roads is reduced. The program reduces pollution and supports more energy efficient movement of goods by farmers, a condition for using the federal overcharge funds.

Furthermore, the Grain train program has been financially self-sustaining since its inception. In fact, the first Grain Train in southeastern Washington has generated enough surplus revenue to pay for a second Grain Train. The first Grain Train recaptured 80 percent of the purchase price of the grain cars in the first six years, and the cars still have 20 years of useful life remaining. The new Moses Lake Grain Train was unveiled in April 2000 and reflects a partnership between the state, the Port of Moses Lake and over 600 wheat farmers in central Washington. Together, the state's two Grain Trains will serve over 1,600 farmers and co-op members in eastern Washington.[6]

Passengers and Freight on the Mainlines

The Intercity Passenger Rail program is an example of an effort where freight considerations are an integral part of a state transportation program that appears to focus only on the movement of people. In April 1993, WSDOT was directed by the Legislature to develop intercity passenger rail service through incremental upgrading of the existing Amtrak service. Since then, a partnership of WSDOT, Amtrak, the freight railroads and others have developed a corridor train service in the Pacific Northwest and British Columbia called Amtrak Cascades. This program offers multiple round trips daily

between Seattle and Portland and between Seattle and Bellingham, Washington, with extensions south to Eugene, Oregon, and north to Vancouver, British Columbia.

Amtrak Cascades is very successful and will continue to expand, state funding permitting. Ridership on Amtrak's Pacific Northwest trains jumped from 94,000 in 1993 to 450,000 in 1999, diverting more than 31 million vehicle-miles of traffic from state highways in 1999. The connection between this very popular intercity passenger rail service and freight is direct--Amtrak Cascades operates on the same mainline tracks that carry freight trains north and south along the Interstate 5 corridor. Burlington Northern Santa Fe Railway (BNSF) and Union Pacific Railroad (UP) own the mainline tracks.

Washington State is pursuing an overall strategy of promoting complementary rail system development. This means that, in most cases, investments benefit both the freight and passenger rail systems. As a general approach, track and safety improvements driven by Amtrak Cascades passenger needs are the state's responsibility, track and safety improvements driven by freight needs are the freight railroad's responsibility, and those improvements driven by both freight and passenger needs are a joint responsibility. For example, when Amtrak, a commuter rail agency and/or the state propose passenger rail improvements, the freight railroad and the passenger rail proponent each conduct independent computer modeling to determine how to accommodate the change without impacting freight service. The models incorporate projected increases in freight train traffic. Negotiations between the parties determine which construction projects are needed and whether these projects are required for improved passenger or freight service. If a project benefits freight and passenger service, investment costs are allocated proportionately.

There can be a further benefit for freight rail service that results from state passenger rail investments. A state investment essentially buys the right to run passenger trains at the time and speed needed. That investment can create latent capacity that improves the performance of the whole system, including freight transportation. Because passenger trains operate primarily in the day, freight railroads can take advantage of the extra capacity on the tracks at night.[7]

Public Ports

WSDOT has a long-standing working relationship with Washington State's public ports and with the Washington Public Ports Association (WPPA). The primary purpose of a public port in Washington State is economic development and commerce. Public ports are a type of municipal corporation under state statute, with elected commissioners and the power to tax within their district. Many public ports operate part of their activities like private enterprises and earn significant revenues from these operations. Statewide, operations revenues account for over 80 percent of total public port revenues. WPPA is the public agency trade association authorized in statute 40 years ago as the coordinating organization for all public port districts in the state. WPPA membership includes 68 public ports with interests in marine terminals, barge facilities, industrial development, marinas, airports, railroads, and other state and national transportation infrastructure.[8]

One example of the continuing relationship between WSDOT and the state's public ports is the recently completed 1999 Marine Cargo Forecast. This is the fourth jointly funded and jointly conducted effort between WSDOT and WPPA. The 1985 Ports and Transportation System Study was the first of its kind to recognize the importance of inland transportation systems to the flow of marine cargo and freight. The extensive 1991 study addressed waterborne commerce traffic, inland highway and rail linkages, expanded Columbia/Snake River coverage, pipelines and air cargo as well as environmental, regulatory and financing issues. The more modest 1995 study focused on waterborne commerce projections, the Columbia/Snake river system, and port-access related issues, including overall highway and rail traffic to and from the public ports. WSDOT also funded a separate examination of private ports and pipelines as a follow-on to the joint 1995 study.

The 1999 Marine Cargo Forecast study follows the 1995 work, with two important additions. The report goes beyond an overall modal split of road and rail traffic to and from the ports; it provides a first-order allocation of inland freight movements among specific modal corridors within Washington State. This represents an initial attempt to quantify the possible transportation impacts of projected marine and river commerce on specific highways and rail lines, including their surrounding feeder routes. WSDOT expects future marine cargo forecast studies to extend this initial work. Second, because of the uncertainty about the Asian economy at the time of the study, the report includes a sensitivity analysis of the forecast projections, with an assessment of the risks along with alternative forecast scenarios.[9]

The state's public ports played a significant role during the mid-1990s in elevating freight issues to a prominent position on the public agenda in Washington. The Puget Sound ports of Seattle and Tacoma together are the second or third largest container load center in North America, depending on the relative strengths of the Asian and European economies. The Puget Sound load center moves more than two and a half million containers each year, and two-thirds of the imported containers move through the state to markets in the interior United States. The efficient movement of freight, whether by water, rail or road, is vital to public ports. Their continuing participation, individually and collectively, in partnerships and efforts to improve freight movement has resulted in numerous freight projects moving forward in Washington State.

Share The Lead and Be A Partner

The recognized need for better freight mobility provides some of the most significant opportunities for developing transportation improvements through public-private partnerships. In the early 1990s, many in Washington State viewed public-private partnerships for freight as a new concept. In reality, many of Washington's public ports had been engaged in public-private partnerships for years at the local and regional level. What was new was the widespread recognition that the state, and particularly WSDOT, could be an important partner in freight mobility. With this recognition came the

expectation that the state should assume the leadership role in freight partnerships involving the private sector and other public institutions.

From WSDOT's experience, state DOTs first should be prepared to share the leadership role and be a contributing partner rather than to assume the leadership role by design or default. Three examples, all acknowledged successes, illustrate this lesson. The FAST Corridor and the IMTC Cascade Gateway are partnerships with metropolitan planning organizations (MPOs); one MPO represents more than half of the state's population and the other MPO is more modest in size. The third example involves the formation of an independent state agency, the Freight Mobility Strategic Investment Board, which solicits project proposals, evaluates them and then recommends freight projects to the Legislature for state funding.

Freight Action Strategy (FAST) Corridor

The Freight Action Strategy (FAST) Corridor is a broad partnership effort of the type that TEA-21 seeks to foster and continues to receive national recognition for its public-private financing framework, most recently the Distinguished Achievement Award from the National Association of Regional Councils (NARC). The co-leads of the FAST Corridor partnership are the Puget Sound Regional Council (PSRC), which is the MPO for the four-county central Puget Sound region, and WSDOT's Office of Urban Mobility (OUM), which is responsible for state transportation planning in the region. Along with PSRC and WSDOT/OUM, FAST partners include the ports of Tacoma, Seattle and Everett, eleven cities, King and Pierce counties, and the BNSF and UP railroads. One common focus among the FAST partners is moving growing freight volumes through the region without adversely impacting local communities.

The ports and railroads, along with the private sector interests they serve, want to move containers off the docks and through the dense Puget Sound urban area as efficiently as possible. The counties and cities, while supporting improved freight mobility, want to mitigate the impacts on local communities of growing freight movement generated by the ports and railroads. Although the federal and state governments are not formal partners, they have a strong funding interest because the FAST Corridor is one of 43 high-priority national corridors explicitly designated in TEA-21. Transportation circles and others around the state acknowledge that FAST Corridor is a working partnership with committed funding and projects that are ready for construction. For these reasons, FAST Corridor is Washington State's number one priority for TEA-21 Corridor/Border funding.

Although the ultimate success of the FAST partnership rests with the partners themselves, a unique institution played an important role during the FAST Corridor's formative period, and it continues to follow the FAST effort. That institution is the Puget Sound Regional Freight Mobility Roundtable, established in 1994 and sponsored by PSRC and the Seattle/King County Economic Development Council. Members include private sector shippers and carriers from all freight modes--marine, rail, truck and air. Participating public agencies include local governments, public ports, WSDOT, federal transportation agencies and the military. The Roundtable meets every two months to

discuss freight issues in which its members have a common interest. Unlike many public-private groups, the Roundtable does not adopt a formal position or make formal recommendations about various freight issues. However, Roundtable members and their associations individually take positions on freight issues, and it is through its members that the Roundtable is an important institution for advancing freight projects in the Puget Sound region and for securing funding from a variety of sources for freight activities.

One major result of the FAST partnership, and more than five years of work, is a set of fifteen interrelated port access and roadway/railway grade separation projects within the Tacoma-Seattle-Everett corridor. The FAST Corridor Phase I package of projects totals $470 million. Overall, the current distribution of funding is about 15 percent lead agency (local government, port or state), 16 percent TEA-21 Corridor/Border program, 9 percent TEA-21 high-priority corridors, 28 percent state, 8 percent ports, 4 percent railroad, and 20 percent other. Two FAST projects are now under construction and five more are scheduled to begin construction in the next 10 months. Despite federal awards that were less than requested and a state transportation funding shortfall precipitated by Initiative 695, FAST Corridor is delivering on its promise to have half of its projects under construction in 2001. When Initiative 695 passed and reduced state transportation revenues by one-third, FAST partners, along with Roundtable members, worked with the Legislature, state transportation agencies and PSRC to reconfigure existing funding and secure the needed funds to keep the FAST Corridor on schedule. [10]

International Mobility and Trade Corridor (IMTC) Cascade Gateway

The International Mobility and Trade Corridor (IMTC) project is another successful partnership, and one that explicitly acknowledges the international transportation links between Washington State and British Columbia. The Cascade Gateway is the geographic focus of IMTC and encompasses the four international border crossings in Whatcom County, Washington. Two of the crossings in Blaine, Washington serve Interstate 5, which is one of the 43 high-priority national corridors designated in TEA-21. The two Blaine crossings move the third highest traffic volume of all U.S.-Canadian border crossing areas. Needed Cascade Gateway improvements are defined and their priorities are developed through the IMTC working group process.

IMTC is a bi-national coalition of federal, state/provincial and local government agencies, private businesses and non-government organizations. The Whatcom Council of Governments (WCOG), the MPO, leads the IMTC, and WSDOT's Northwest Region is a full partner with WCOG. Other partners from south of the border include USDOT, Customs, the Immigration and Naturalization Service, several Whatcom County cities, the Port of Bellingham, BNSF Railroad and private firms. IMTC partners north of the border include Transport Canada, the British Columbia (BC) Ministry of Transportation and Highways, Canada Customs, Citizenship and Immigration Canada, several cities in southern BC, as well as private companies.

The IMTC Cascade Gateway addresses the movement of people and freight by road and rail, north and south, across the U.S.-Canadian border through a planned and coordinated

set of operations and infrastructure improvements. Work now underway, which is supported in part with TEA-21 Corridor/Border funds, state monies and Canadian funds, includes on-going coordination of bi-national planning, a cross-border trade and travel demand study, expanded use of the PACE and CANPASS dedicated commuter lane programs, and deployment of Phase II commercial vehicle operations (CVO) ITS improvements. The next set of IMTC priority projects includes engineering for highway improvements at the border for vehicles and truck clearance, deployment of cross-border advanced traveler information systems, and implementation planning for improvements to gateway rail and gateway public transit operations. Like FAST Corridor, IMTC is a working partnership with committed funding, and its Cascade Gateway projects are ready to go with the active support of the Canadian partners. IMTC Cascade Gateway projects are Washington State's number two priority for TEA-21 Corridor/Border funding.[11]

Freight Mobility Strategic Investment Board (FMSIB)

The Freight Mobility Strategic Investment Board (FMSIB) is an independent Washington State agency that recommends freight projects to the Legislature for state funding. FMSIB is a clear departure from the traditional view that transportation problems reside solely with the jurisdiction responsible for a transportation facility or service. FMSIB fosters partnerships and directs public and private resources toward projects of strategic importance to the state's economy without regard to jurisdictional ownership. Public funding is targeted toward projects that, first and foremost, solve freight mobility problems and produce demonstrated public benefits in addition to their private benefits. FMSIB evaluates and ranks projects within a common framework based on measured results and outcomes that reflect its program goals and objectives. The Board recommends a portfolio of projects in which state funds are invested in the highest priority projects statewide before considering where projects are geographically located. Bringing this type of departure from traditional thinking to fruition required the concerted efforts of the state's freight interests, and it was not accomplished overnight.

In late 1995, freight mobility was one the key issue areas highlighted in a series of transportation forums that were held to identify significant transportation problems in Washington State. Increasing congestion on roads and rail was impacting the state's marine ports and the movement of both imports and exports. Truck delay was growing near urban distribution centers and at the Canadian border. Local communities, faced with the prospect of increasing freight and passenger rail traffic, were seeking financial assistance to help alleviate local roadway/railway conflicts. Although numerous freight ideas were suggested at the transportation forums, Washington had no statewide program with funding for freight mobility projects. Freight mobility had become the popular transportation issue at all levels, and more than a few observers were concerned that freight might be no more than a passing "flavor of the month."

Freight Mobility Advisory Committee (FMAC)

By mid-1996, freight projects were being identified and developed to the point where state funding could be requested. With legislative funding, freight-related analyses were underway for south downtown Seattle, the Tacoma tide flats, southwest Washington ports

and the rail lines through Auburn. FAST Corridor had been formed and was identifying freight projects in the central Puget Sound area in coordination with other efforts. Smaller communities individually were approaching the state with funding requests to help mitigate rail impacts. In the fall of 1996, the state's Legislative Transportation Committee established the Freight Mobility Advisory Committee (FMAC). The 23-member group, composed of federal, state, county, city, port, railroad, trucking, barging and shipping representatives, was asked to advise the Legislature on freight. Should the state have a freight policy? Should the state have a program to fund freight projects? If so, how would a state freight program be structured? Should the state provide dedicated funding for freight projects?

FMAC completed its work and reported to the Legislature in early 1997. FMAC recommended a state freight mobility program with dedicated funding and provided guidance for project selection and funding decisions. As a result of a call for proposals, FMAC identified over 150 freight mobility projects in three priority groups for possible state funding. Throughout the FMAC report, four themes were recurring. First, the state must take a leadership role in addressing freight mobility. Further, freight mobility must be addressed from a statewide perspective. Third, because state funds for transportation are limited, partnerships with public and private institutions are needed. Finally, freight investment decisions must be strategic.

Strategic freight corridors were a central concept in FMAC's approach to improved freight mobility. A strategic freight corridor is one that is part of a multi-modal network that extends beyond the state's boundaries and one that is of the highest importance to the state's economic vitality. Strategic freight corridors are corridors that serve international, interstate and intrastate trade and enhance the state's competitive position through regional and global gateways. When FMAC recommended certain freight projects for immediate funding, one its principal eligibility criteria was that the project be located on a strategic freight corridor. As a practical matter, FMAC built on WSDOT's FGTS approach and used annual gross tonnage as a measure to help identify strategic freight corridors on the state highway, county road and city street systems. FMAC extended the concept further to rail and water, using gross tonnage for railroads and net waterborne commerce tonnage for waterways. Washington State continues to designate strategic freight corridors for roadways, railways and waterways based on the work of FMAC. Location on a strategic freight corridor is a project eligibility criterion for FMSIB funding.

Many of FMAC's recommendations were incorporated into a House bill introduced during the 1997 Legislative session. The bill passed the state's House of Representatives and the Senate Transportation Committee, but failed to clear the Senate before the end of the session. The bill would have established a state policy for freight mobility, a program structure for a strategic freight mobility investment program, and dedicated funding for state investments in freight mobility. The bill incorporated FMAC's guidance for eligibility, priority and funding selection criteria, and emphasized flexibility and partnerships in funding decisions. To observe that the state's freight interests were

disappointed with the failure of the FMAC bill to pass would be an understatement. However, consistent with the legislative adage that "nothing is dead until it is really dead," a budget proviso was introduced and passed that directed WSDOT to implement the recommendations of FMAC.

Freight Mobility Project Prioritization Committee (FMPPC)

WSDOT established the 11-member Freight Mobility Prioritization Committee (FMPPC) in mid-1997. FMPCC included representatives of cities, counties, public ports and the Transportation Commission as well as private sector shippers, trucking firms and mainline railroads. The Committee's work focused on four aspects of FMAC's recommendations: threshold eligibility criteria, project priority criteria, funding selection, and the role of partnerships. In its final report, FMPPC applied its recommended process to identified freight projects and presented a ranked list of statewide high priority freight mobility projects. The immediate goal of FMPPC was to develop credible program processes with project criteria so that the ultimate goal would be achieved--the establishment of an enduring freight mobility investment program with assured long-term funding. The Committee's work was forwarded to the Legislature in early 1998. Three aspects of FMPPC's work, later incorporated into FMSIB's statute, are noteworthy.

FMPPC recommended threshold eligibility criteria that incorporated the words and concepts of a "strategic freight investment" program. Following FMAC's lead, eligible projects must be "strategic", and they must be located on a strategic freight corridor. Further, eligible projects must be "freight", that is, they must be primarily aimed at improving freight movement with only incidental benefits to general or personal mobility, or they must be aimed at mitigating the impacts on local communities of increasing freight movement. The hard focus on freight by FMPPC was deliberate. The formation of FMAC and FMPPC were clear indicators that freight was not being adequately addressed through existing transportation funding programs. If limited state transportation funds became available for freight mobility, they should be directed at meeting freight needs and not diluted by meeting other transportation needs, except incidentally. Finally, eligible projects are an "investment" of public funds, and they must return public benefits greater than their public costs.

FMPPC's priority ranking criteria were explicitly incorporated into FMSIB's enabling statute by reference, and remain intact with minor modifications. About two-thirds of a project's total priority points are based on the objective comparison of data, which can be verified, and the remaining one-third of a project's priority score is based on subjective evaluations of an expert scoring team. From another perspective, about three-eighths of a project's the total point score is based on criteria measuring improved freight mobility in the immediate project area as well as the region, state and nation. An equal weight, about three-eighths of the total point score, is based on criteria addressing freight mitigation measures, including general mobility, safety, economic value and environmental factors. About one-quarter of a project's total point score is based on partnerships, plans, cost and other issues.

A third aspect of FMPPC's recommendations incorporated into FMSIB's statute concerns the selection of projects for state funding. Projects are selected for funding based on the statewide priority list and specified allocations to geographic regions of the state. Over one-half of available funding first is allocated to the highest priority projects on the statewide priority list without regard to geographic location. Following this, equal allocations to three geographic areas are made from the statewide priority list. This approach of combining priority and geographic distribution assures that freight projects with the highest statewide priority receive funding and that funding is distributed to the highest priority projects within geographic areas.

FMSIB Finally

The FMSIB statute, which includes Washington State's freight mobility policy, was passed during the 1998 Legislative session and signed into law by the Governor. By mid-1998 the 12-person Board was appointed and began its work. FMSIB members include: two representatives each for cities, counties and public ports; representatives from the trucking, rail and marine shipping industries; the state Secretary of Transportation; a representative of the Governor's office; and a Board Chair from the private sector. The Board acted quickly to adopt the program's strategic freight corridors, an effort coordinated with the Washington Transportation Commission. By the end of 1998, FMSIB had refined and forwarded to the Governor and the Legislature its recommended list of priority freight mobility projects. The total cost of the 48 freight projects was over $1.2 billion, and FMSIB requested $472 million in state funds as FMSIB's share of the total cost. The 1999 Legislature acted favorably on the FMSIB request, providing initial approval for $342 million in state funding for 33 projects over the six-year period 1999-2005. Over $120 million was appropriated by the Legislature for the 1999-2001 biennium as FMSIB's funding share of the priority freight projects.

Only one FMSIB project was authorized for funding before the potential passage of Initiative 695 (I-695) halted any further funding action for FMSIB projects, along with a great many other transportation projects at the state and local levels. In recent years, Washington State relied on three state-imposed and state-collected sources of revenue to fund transportation: motor fuel taxes, including the gas tax; licenses, permits, and fees for using the transportation system; and the Motor Vehicle Excise Tax (MVET) based on vehicle value. In November 1999, Washington's voters passed I-695 and eliminated the MVET, also called the car tabs tax, as a major source of transportation revenue. The elimination of the MVET amounts to about a one-third reduction in WSDOT's biennial budget, absent other actions. Local governments also relied in part on MVET revenues to help fund transportation projects, and many local projects could not be started.

In the 2000 Legislative session, the Governor and the Legislature stepped up to the issue and restored about one-half of the transportation funding that was cut by I-695. Transportation projects under construction and projects with federal funding commitments became priorities for restored transportation funding. Despite these and other considerations, WSDOT's 1999-2001 biennial budget was reduced by almost one-quarter. As a new institution, FMSIB was especially at risk. However, a number of

FMSIB's priority projects were ready to go to construction, more than a few involved federal funding commitments, and freight was recognized as an important transportation issue that required immediate support. During the 2000 Legislative session, the Governor and the Legislature restored almost $50 million in FMSIB project funding for the 1999-2001 biennium. When these funds are coupled with additional funds from other sources, 14 of FMSIB's priority freight projects are moving forward, and all of these will be under construction by June 2001.[12]

Realities on the Learning Curve

One lesson that WSDOT continues to learn as it moves along the freight learning curve is that the realities of working with the private sector are part of the agency's business environment. Although the outline of lessons that should be learned by state DOTs remains under development, three realities of working with the private sector on freight issues are highlighted here. First, moving freight is a private sector activity that is and will continue to be conducted by private carriers using public infrastructure in response to changing market conditions. Second, true partnerships between the public and private sectors, and for that matter even among public institutions, are more than the money. Finally, despite the very real divergence between public sector planning and private sector planning, there appears to be some common ground where success is possible.

A Private Sector Activity

Freight in the United States moves primarily by private sector carrier. This truism is recited to excess at almost every meeting of public sector transportation officials that addresses freight. A more important aspect to acknowledge, and then incorporate into public sector planning and decision-making, is that freight moves by the summation of many private sector decisions based on market and economic realities rather than technical, engineering-based models. A mainline railroad executive addressing a public meeting on rail crossings once stated "freight moves where freight wants to move." Freight mobility depends on public infrastructure, but public infrastructure is not a sufficient condition by itself to justify changes in freight movement. Public infrastructure may be necessary most of the time, but it is not sufficient. Most states, and many counties and cities, can offer examples, generally in other jurisdictions, of where "build it and they will come" did not produce the desired results. Freight is not a field of dreams. Perhaps another way of saying this is that freight reacts to market pull rather than infrastructure push.

The influence of market factors on the location of intermodal freight facilities was examined in a recent analysis conducted as part of the state of Washington/Port of Benton Hanford Investment Study. The overall study was a joint effort of the state's Legislative Transportation Committee, the Port and WSDOT. The larger study examined the feasibility and economic viability of various development options for federal properties that might be transferred to the Port. One of the initial development ideas was the establishment of an inland port or intermodal center. A modest survey of less than a dozen facilities around the country concluded that proximity to a major population center and thus proximity to markets were the most common factors shared by successful freight

intermodal service and commercial centers. The same analysis also identified some intermodal facilities that were struggling because market factors were not sufficiently considered before the facilities were constructed.[13]

True Partnerships

A true partnership is the mutual sharing of the risks, responsibilities and cost of a project as well as the project's rewards and benefits. True partnerships are more than the money. In true partnerships, the risks, responsibilities and costs of a project are based first on the rewards and benefits to the partnering institutions, and second on the public policy considerations. Public policy should lead to the consideration of partnerships as one approach for addressing public issues. However, public policy considerations alone should not determine the outcome of partnerships. This concept is especially important in the development of public-private partnerships.

When public institutions begin the development of a public-private partnership with policy considerations, the process almost invariably moves to what costs and what responsibilities the participating institutions should bear. As a result, the risks and the benefits that the participating institutions will assume are generally overlooked. As important, the risks and rewards accruing to institutions outside the initial participant group may not be acknowledged. One of the reasons that negotiating public-private partnerships in a public forum generally leads to less favorable partnerships for the public sector is that public policy considerations come forward almost immediately. Public-private partnerships are best negotiated in a private forum with final approval in a public forum. This is one dimension of public-private partnerships that the private sector needs to understand and accept as an inherent requirement of working with the public sector.

A framework is outlined below that may prove helpful to state DOTs developing partnerships with other institutions. The framework is based on a series of questions that a public institution might ask as it seeks to enter into a partnership. The general approach is iterative, starting with a descriptive analysis and moving toward more quantitative methods in subsequent iterations. Some practical considerations for public agencies are also noted.

One Approach to Partnerships

A starting point for developing a partnership is to ask the question: What are the benefits of the project and what institutions will benefit? An institution in this context can be a private firm, a group of firms, a local community, or even a larger regional, state or national "community." Starting with the smaller institutions and working up to larger institutions may be helpful. Another potential aid is attributing the benefits for certain groups to recognized institutions. For example, suppose an intersection at a state highway and a city street, which is adjacent to a large firm and residential neighborhood, is proposed for traffic improvements. What portion of the traffic benefits accrues to the firm, to the neighborhood, to city through-traffic and to state through-traffic? Here, it may be appropriate to attribute the neighborhood benefits to the city.

With an understanding of the institutional benefits, the second question is: What does the distribution of project benefits to various institutions imply about the distribution of project risks, responsibilities and costs? In other words, based solely on the initial benefit distribution, what institutions could be expected to assume some level of risk, responsibility and/or costs? From a practical perspective, taxes deserve careful consideration. Tax revenues are payments for services and only become a benefit if tax revenues exceed the cost of services provided. Also, tax revenues dedicated to bond repayment may entail foregone opportunity costs, depending on the length of the repayment period.

Public policy considerations are introduced in the third step and may modify the initial distribution of project risks, responsibilities and costs to various institutions. For example, many states have rural economic development policies under which the state assumes certain development costs for smaller communities in high unemployment areas. The application of policy considerations also varies by level of government. State policies are generally silent, other things being equal, when two in-state communities are competing to attract an out-of-state firm. For the individual communities, local policies will be applied to offset some of the firm's entry costs, but not any of the state costs.

As a fourth step, the starting point for negotiations (or for the next stage of negotiations) is determined along with the boundaries of the negotiation process. What issues will be on the table or off the table? What issues will be "push backs" and why? Under what circumstances is the public entity prepared to walk away from the partnership negotiations? One circumstance should be when the public benefits do not justify the risks, responsibilities and costs that the public sector assumes. In the public sector, this is far easier to say than to do. Because of this, the private sector generally has an edge in negotiations with the public sector.

Freight Planning

A third reality of state DOTs working with the private sector is the divergence between public sector planning and private sector planning. Many state DOTs develop planning documents with long time horizons, broad transportation scope and statewide scale. The Washington Transportation Plan (WTP) provides a 20-year view, addresses all modes of transportation, and is attempting to integrate, at least in the current update under development, regional and even some local transportation plans into the overall statewide plan. Yet, despite the time horizon, scope and scale of the WTP, Washington State implements its transportation improvements based on a two-year budget cycle that is often modified each year. The passage of I-695 is a painful case in point. In contrast, private sector firms develop strategic business plans that look out five years at best, capital investment plans that rarely go beyond three years, and operating plans for the quarter, half-year or year. Despite the divergence, there can be some common ground where joint public-private planning can be successful.

Based on WSDOT's experience, as well as discussions with other state DOTs, some of the most successful public-private freight planning is occurring at the MPO or sub-state

regional level. These planning efforts appear to share three elements in terms of scope, scale and time horizon, along with a fourth commonality. First, the planning focuses exclusively or primarily on freight issues, with other transportation issues addressed by other organizational groups. This keeps the focus on freight and minimizes other complicating transportation issues. Second, the scale of the planning effort is constrained to an area with identifiable problems and identifiable resources. The public and private participants have a common, regional basis for planning that is human-scale. Third, the planning time horizon is on the order of two to five years, and remains flexible, depending on the issue at hand. Finally, these planning efforts represent workable partnerships that stress candor among the participants.

This paper opened with the acknowledgement that dealing with the expectations placed upon WSDOT in the new era of freight has been and will continue to be a learning experience for the department. Hopefully, this discussion of the lessons being learned by WSDOT and the experiences of Washington State will benefit state DOTs as well as the public institutions and private freight interests with which they work. Freight mobility is a new and shared domain for state transportation agencies, and it is too important to be left undone.

Endnotes

[1] Some of the themes underlying this paper were presented at the 53rd Annual Ohio Transportation Engineering Conference (OTEC 99) in November 1999. The author gratefully acknowledges the OTEC 99 sponsors, The Ohio State University College of Engineering and the Ohio Department of Transportation, and the invitation of the Mid-Ohio Regional Planning Commission, which organized the intermodal freight technical session at OTEC 99.

[2] From the WSDOT Internet site at http://www.wsdot.wa.gov/ppsc/planning/, go to Washington's Transportation Plan, and then go to The Current Plan (1997-2016).

[3] From the WSDOT Internet site at http://www.wsdot.wa.gov/ppsc/planning/, go to Highway Systems Plan Page, and then go to Highway Systems Plan text.

[4] From the WSDOT Internet site at http://www.wsdot.wa.gov/ppsc/programmanagement/, go to Programming & Operations Manual.

[5] From the WSDOT internet site at http://www.wsdot.wa.gov/pubtran/rail/freight.htm, go to Washington State Freight Rail Plan 1998 Update

[6] The WSDOT Internet site is http://www.wsdot.wa.gov/pubtran/graindouble.htm.

[7] The WSDOT Internet site is http://www.wsdot.wa.gov/pubtran/rail/about.htm.

[8] The WPPA Internet site is http://www.washingtonports.org.

[9] From the WSDOT Internet site at http://www.wsdot.wa.gov/tepd/, go to Marine Cargo Forecast.

[10] Beaulieu, Peter D. "The FAST Corridor: A Step into the Next Larger Questions." Publication forthcoming in Transportation Quarterly, Eno Transportation Foundation.

[11] From the WCOG Internet site at http://wcog.org, go to IMTC.

[12] The FMSIB Internet site is http://www.fmsib.wa.gov.

[13] From the WSDOT Internet site at http://www.wsdot.wa.gov/tepd/, go to Hanford Investment Study, and then go to Phase II Report Detailed Feasibility (see Appendix II, Inland Port and Intermodal Center Criteria).